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| APPLICATION NO.                    | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/649,694                         | 08/28/2003  | Shigeru Nakajima     | 000409-052          | 6760             |
| 21839                              | 7590        | 02/23/2005           | EXAMINER            |                  |
| BURNS DOANE SWECKER & MATHIS L L P |             |                      | CORRIGAN, JAIME W   |                  |
| POST OFFICE BOX 1404               |             |                      | ART UNIT            |                  |
| ALEXANDRIA, VA 22313-1404          |             |                      | PAPER NUMBER        |                  |

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DATE MAILED: 02/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary****Application No.**

10/649,694

**Applicant(s)**

NAKAJIMA, SHIGERU

**Examiner**

Jaime W Corrigan

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11-30-04, 6-28-04</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Claim Objections***

Claim 3 is objected to because of the following informalities: Claim 3 is dependent on claim 3. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Noguchi (PN 6,039,016).

Regarding claim 1 Noguchi discloses a rotor (See Figure 2 (20)), a housing (See Figure 2 (30)) which can rotate relative to the rotor, a projecting portion which is formed on the housing so as to slide on the outer (See Figure 2 (70), (30)) circumference of the rotor, a fluid chamber (See Figure 2 (R1), (R2)) which is defined between the rotor and the housing, a vane (See Figure 2 (70)) which is provided on the rotor and which divides the fluid chamber into a retard angle chamber and an advance angle chamber and a torsion coil spring (See Figure 1 (60)) for urging the rotor relative to the housing in the advance (See Column 4 Lines 36-40) angle direction in which the volume of the retard angle chamber decreases and the volume of the advance angle chamber

increases and disposed in the twisted condition with a predetermined angle so as not to contact with the rotor and the housing frictionally (See Column 5 Lines 59-65).

Regarding claim 2 Noguchi discloses the maximum twisted angle of the torsion spring is within  $360^{\circ}$  (See Figure 3 (60)).

Regarding claim 3 Noguchi discloses one end of the torsion spring (See Figure 1 (60)) is engaged with an first engaging groove formed on a plate (See Figure 1 (90)) connecting to the housing and the other end of the torsion spring is engaged with a second engaging groove formed on the rotor (See Figure 1 (20)), and the first engaging groove is disposed at the approximately same position with respect to the approximately circumferential center portion of the projection portion which has a maximum circumferential width (See Figure 1 (30)).

Regarding claim 4 Noguchi discloses a first hook portion (See Figure 3 (60)) which is extended outward in the radial direction is formed on one end of a coil portion of the torsion spring and a second hook portion (See Figure 3 (60)) which is extended outward in the radial direction is formed on the other end of the coil portion of the torsion spring, a first engaging (See Figure 1 (46)) portion which is engaged with the first hook portion is formed in the first receiving groove and a second engaging (See Figure 1 (47)) portion which is engaged with the second hook portion is formed in the second receiving groove, and wherein the first engaging portion is opened on a

surface of the plate (See Figure 1 (90)) connecting to the rotor and the second engaging portion is opened on a surface of the rotor (See Figure 1 (20)) connecting to the plate.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sato et al. (PN 5,870,983), Haag (PN 6,032,626) disclose similar timing control devices.

Any inquiry concerning this communication from the examiner should be directed to Examiner Jaime Corrigan whose Carlyle telephone number is (571) 272-4858. The examiner can normally be reached on Monday - Friday from 8:30 a.m. – 6:00 p.m. 2<sup>nd</sup> Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reached on (571) –272-4859. The fax number for this group is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-3700.

JC

Jaime Corrigan

*Jaime Corrigan*  
Patent Examiner

February 21, 2005

Art Unit 3748

*Thomas Denion*  
**THOMAS DENION**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 3700**